**News Releases**
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## Provincial Government Invests in Expanding Capacity for Industrial Research and Development

Researchers at Memorial University have received $5,073,122 from the Provincial Government's Industrial Research and Innovation Fund (IRIF). Investments in research and development projects include research into insect behaviour, ocean habitats, pollution in the far North, physician retention in the province, bone implants, the effects of nutraceuticals, birth defects, hypertension, and neural regeneration. Announced in an event today at the Inco Innovation Centre in St. John's, the 20 research projects have a total value of more than $26 million leveraging $5.14 for every dollar invested by the Provincial Government.

"Research and Development (R&D) is the basis for knowledge development and is essential in fostering innovative and competitive economies," said the Honourable Trevor Taylor, Minister of Innovation, Trade and Rural Development. "The Provincial Government is focused on strengthening research excellence and the R&D capacity of our universities and colleges."

IRIF is designed to support research and development, and industrial innovation at post-secondary and public research institutions in the province. It provides the necessary resources to enable the province's academic institutions develop, attract and retain world-class scientists and researchers. Targeted fields of research include advanced manufacturing, marine technology, biotechnology, pharmaceutical research, value-added natural resources, and the oil and gas industry.

In 2005 the Provincial Government's White Paper on Public Post-secondary Education highlighted the need to support academics and students by providing matching and start-up funds that will attract federal investments in research and development at Memorial University and College of the North Atlantic.

"A good foundation for successful social and economic development for the province must involve our public post-secondary institutions and we are pleased with the research efforts of our institutions in positioning Newfoundland and Labrador for prosperity within a global, knowledge-based economy," said the Honourable Joan Burke, Minister of Education. "This world class research will attract federal research funding, and support faculty and students, as well as provide a tool to attract some of the best researchers to the province."

"Research is a core function of Memorial University. It is essential to our growth as a major university in Canada, and our ability to attract the best minds," said Dr. Christopher Loomis, Vice-President, Memorial University's Office of Research. "Funding from the Industrial Research and Innovation Fund has transformed our ability to attract new federal and private sector investments in support of research and our graduate students. These projects, which are the latest examples of that success, will yield important benefits to the province, the country and indeed the world."

Memorial University and the College of the North Atlantic, and their institutes and incorporated entities are eligible for support under the fund. The maximum contribution under the fund to a specific proposal is $500,000 in cases where there is no private sector partner and $800,000 when there is a partner who contributes more than 25 per cent of the total eligible costs.

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**BACKGROUNDER**

The Industrial Research and Innovation Fund (IRIF) is an initiative of the Government of Newfoundland and Labrador to provide its academic institutions with the appropriate resources to remain competitive with other Canadian jurisdictions.

Projects awarded under IRIF include:

- **Dr. Paul Snelgrove of the Ocean Sciences Centre and Canada Research Chair in Boreal and Cold Ocean Systems**

Dr. Snelgrove has received over $1.1 million towards two research projects.

He has received $1,002,517 towards a $9 million national oceans network. The network will be a partnership of Canadian universities and levels of government and mobilize science capacities to respond to research challenges and knowledge gaps in ocean environments. It will also address a need for scientific criteria for conservation and sustainable use of marine biodiversity resources.

An additional $97,988 towards a $633,313 project has been provided to Dr. Snelgrove to help investigate biodiversity loss and the deterioration of oceans.

For 10 years, Dr. Snelgrove's research has focused on acquiring an improved understanding of marine ecosystems leading to better management practices and predictions while providing a more comprehensive perspective on the North Atlantic shelf ecosystem.

- **Dr. Maria Matthews of Memorial University's Faculty of Medicine**

Dr. Matthews has received $31,840 towards a $78,541 project to create a medical practice registry and facilitate research on physician retention and its impact on communities, medical organizations, and patients. Data will be collected from approximately six organizations including the College of Physicians and Surgeons of Newfoundland and Labrador and the Canadian Institute of Health Information.

- **Dr. Jackie Vanderluit of Memorial University's Faculty of Medicine**

Dr. Vanderluit has received $169,428 towards a $338,856 project to study the role of cell survival genes in promoting neural regeneration.

The discovery of stem cells in the adult brain has generated hope that brain regeneration may one day be possible. The long-term objective of this research is to help the brain heal itself. Currently, low numbers of stem cells in the brain limit their ability to restore brain function following an injury. The goal of this project is to develop a strategy to expand the number of stem cells within the brain and manipulate them to generate new nerve cells to replace those lost due to neurodegenerative diseases or after acute injuries such as a stroke.

- **Dr. John Weber of Memorial University's School of Pharmacy**

Dr. Weber has received $163,409 towards a $433,067 project to establish a laboratory to undertake two areas of research. The first initiative will include examining the effects of pathological states on Purkinje neurons in the cerebellum, which are vital for proper motor coordination and motor learning.

Dr. Weber's research will also focus on the analysis of extracts from locally-grown nutraceuticals for their potential neuroprotective effects against traumatic injury, ischemia, and aging.

- **Dr. John McGuire of Memorial University's Faculty of Medicine**

Dr. John McGuire has received $142,383 towards a $284,767 project to offset endothelial dysfunction in hypertension.

Doctors want to know why blood vessels work improperly in people with hypertension and diabetes. It is known that two types of cells in blood vessels interact to let more or less blood pass as the body needs it, and that these cells, if treated with certain drugs, can instantly increase the size of blood vessels. The project seeks to determine how the cell receptors work to restore cells ability to change a blood vessel's size. The effectiveness of other blood vessel drugs will also be examined.

- **Dr. Christopher Loomis, Vice-President, Memorial University's Office of Research**

Dr. Loomis has received $650,000 towards a $1,465,000 project entitled *ACCELERATE Newfoundland and Labrador – Newfoundland and Labrador's Graduate Research Internship Program*. The multi-disciplinary research program will support collaborative projects involving graduate students and post-doctoral researchers, supervising professors, and industry partners. Interns will undertake research projects on-site with partners using advanced research tools and techniques to address research issues arising within those organizations. Internships will be offered across all disciplines including science and engineering, health, arts and social sciences and target provincial priorities.

- **Dr. Steve Butt of Memorial University's Faculty of Engineering and Applied Science**

Dr. Butt has received $650,000 towards a $3.7 million project on advanced exploration drilling technology.

The objective of the five-year project will be to develop and commercialize a Vibration-Assisted Rotary Drilling (VARD) tool. The resulting product will be a prototype drilling tool with which comprehensive field tests will be undertaken. The work will additionally enable the simulation of drilling under a broad range of conditions that are available from the first specimen cell alone, in particular, those conditions that give rise to a number of problems such as borehole breakout, trajectory wander and wellbore stability.

- **Dr. Brian Veitch of Memorial University's Faculty of Engineering and Applied Science**

Dr. Veitch has received $500,000 towards a $3,352,605 project studying small craft simulation backbone technology development.

The project will develop the framework for Virtual Marine Technology (VMT) to introduce market-

ready prototypes for small craft simulation training. The project is a major component in a research and development strategy through which a multi-disciplinary team will provide the intellectual foundation for a sustainable competitive edge in small craft simulation.

- **Dr. Bing Chen of Memorial University's Faculty of Engineering and Applied Science**

Dr. Chen has received $234,600 towards a $562,277 project to help establish a northern region persistent organic pollution control laboratory. In the short term, Dr. Chen's research will help Canadian industries reduce their pollution. In the long term, it will establish Canada as a leader in R&D of innovative pollution-control technologies.

- **Dr. Patrick Parfrey of Memorial University's Faculty of Medicine**

Dr. Parfrey has received $270,800 towards a $3,270,800 project developing a Newfoundland and Labrador inter-disciplinary research centre in human genetics.

The project is important to the development of inter-disciplinary teams of researchers, and has the potential to transform clinical research in the province. The goal of the project is to initiate a database management program and eventually the creation of an inter-disciplinary research centre in human genetics.

- **Dr. Francesca Kerton of Memorial University's Department of Chemistry.**

Dr. Kerton has received $238,602 towards a $516,478 to establish a laboratory for green chemistry research.

Dr. Kerton and her team will perform a wide range of innovative synthetic and catalytic experiments enabling the development of new techniques, catalysts, materials, and chemical products. The proposed facilities address the need for key equipment, instrumentation and infrastructure to meet international standards in the new and growing field of green chemistry.

- **Dr. Aimee Surprenant of Memorial University's Department of Psychology**

Dr. Surprenant has received $212,537 towards a $382,565 cognitive aging and memory laboratory.

The research will focus on understanding the changes in cognitive ability, especially in memory, that occur as healthy people age. Its objective is to develop a formal, quantitative model allowing researchers and practitioners to identify the areas of functioning that are critical to efficient cognitive processing.

- **Dr. David Pike of Memorial University's Department of Mathematics and Statistics**

Dr. Pike has received $185,710 towards a $460,712 project examining large-memory computational problems in mathematics and statistics.

Dr. Pike's research will encompass research activities in graph and network theory, fluid dynamics, and statistics. Its applications extend from ecological resource management to the stability of offshore drilling structures to improved disease treatment and prevention strategies.

- **Dr. Thomas Chapman of Memorial University's Department of Biology**

Dr. Chapman has received $137,463 towards a $359,492 project to help establish an insect behaviour/molecular biology research laboratory. The new laboratory will collaborate with laboratories in Italy and Sweden, as well as help Memorial students acquire important research skills.

Funding will also allow Dr. Chapman to purchase dissecting microscopes to identify, control and record insect behaviour; equipment for the visualization of DNA; computers to store large amounts of genetic data; and an ultra cold freezer for storing specimens – many of which have been collected in Australia.

- **Dr. Robert Greenwood of Memorial University's Harris Centre**

Dr. Greenwood has received $129,090 towards a $372,180 project examining the social dynamics of economic performance in cities.

The research funding for the St. John's component of the project will be used to conduct 75 interviews in the St. John's area and 30 interviews in other regions of the province, using the national model that is being used in 15 city-regions across the country. The larger national project will make comparisons between city-regions and smaller towns on innovation and creativity and their role in economic development to better understand the potential interventions required in smaller towns and rural regions.

- **Dr. Ivan Saika-Voivod of Memorial University's Department of Physics**

Dr. Saika-Voivod has received $97,339 towards a $247,684 project for computer simulation of liquids and soft materials, and biomaterials.

The research will focus on crystal and glass formation in a variety of systems. The goal is to further understanding of the basic physics behind these processes, and to apply this knowledge to areas such as better bone implants or manipulation of viruses.

- **Dr. Paul Marino of Memorial University's Department of Biology**

Dr. Paul Marino has received $55,868 towards a $126,491 project.

Dr. Marino will develop facilities to study the importance of visual and olfactory signals in fly attraction. The research may lead to the identification of attractants for various families of flies – some of which may prove to be biting flies and carriers of disease.

- **Dr. Ann Dorward, Memorial University's Faculty of Medicine**

Dr. Dorward has received $55,431 towards a $132,361 project that focuses on the mouse as a model system for reproductive cancer research.

Mouse models offer such advantages for research as the implementation of specific breeding strategies, the opportunity to introduce genetic or epigenetic modifications, and the ability to perform therapeutic testing.

- **Dr. Kenneth Kao of Memorial University's Faculty of Medicine**

Dr. Kao has received $54,584 towards a $109,169 project to investigate Treacher Collins Syndrome (TCS) which affects one in 50,000 live births producing a range of head and facial anomalies thought to be linked to a single gene called "Treacle." Dr. Kao's has found that a newly discovered gene influences the treacle gene and is investigating how these genes interact, how the syndrome arises, and how it may be avoided or treated.

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